

What is Claimed is:

1. A parallel router interface comprising:
a plurality of parallel channels, wherein each of said channels can transmit a block of bits at a time, and wherein said blocks form at least a portion of a packet;
a parallel-to-serial converter that converts each of said blocks to a serial stream of data and provides said stream to a serial interface; and
a plurality of framers coupled to said serial interface, wherein each of said framers is associated with one of said plurality of parallel channels.
2. The interface of claim 1 wherein each of said blocks is at least a byte wide, and wherein each of said parallel channels has at least a byte-wide interface for grabbing said block of data.
3. The interface of claim 1 for transmitting at least 80 Gbps/sec wherein each said at least a byte-wide interface is exactly a byte wide and said plurality of parallel channels comprises eight byte-wide channels for transmitting data at a rate of at least 10 Gbps each.
4. The interface of claim 1 wherein each of said blocks is a half byte wide, and wherein each of said parallel channels has at least a half byte wide interface for grabbing said block of data.
5. The interface of claim 1 for transmitting at least 80 Gbps wherein each said at least a half byte-wide interface is exactly a half byte wide and said plurality of parallel channels comprises thirty two half byte-wide

channels for transmitting data at a rate of at least 2.4 Gbps each.

6. The interface of claim 1 wherein each of said plurality of framers add a synchronization word at a same time that serves as a temporal marker.

7. The interface of claim 1 wherein each of said framers is a combination of hardware and software.

8. The interface of claim 1 wherein each of said framers converts communications packets from at least one format selected from a group selected from TCP, SNA, IPX, into frames that can be sent over a frame relay network.

9. The interface of claim 1 wherein each of said framers provides time synchronization between at least two of said channels by adding a synchronization word.

10. The interface of claim 9 wherein each of said framers provides at least one of an error detection code and a forward error correction.

11. The interface of claim 9 wherein each of said framers scrambles packet data.

12. A hardware-based router interface between a router having a desired capacity and at least two lower-capacity interfaces, wherein each of said lower-capacity interfaces comprises:

a plurality of block interfaces that each handle a block of a packet at a time;

a framer for each of said lower-capacity interfaces, wherein each of said framers provides time synchronization between said lower-capacity interfaces; and
a converter that supplies data between said lower-capacity interfaces and said framers.

14. The router interface of claim 12 wherein said block interfaces are byte-wide interfaces.

15. A system comprising:

a first router and a second router of a desired capacity, each router including a hardware interface between the router and at least two lower-capacity interfaces of less than the desired capacity, the hardware interface comprising:

a plurality of block interfaces, wherein each of said block interfaces can transmit a byte of a packet at a time;

a plurality of respective framers for each of said at lower-capacity interfaces, each of said framer providing time synchronization between said at least two interfaces; and

at least one converter that supplies data between said plurality of block interfaces and said framers; and

a WDM transport system between said routers.

16. The system of claim 15 wherein said block interfaces are byte-wide interfaces.